MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2022/2023 (TERM ID 2230)

PCA 0016 – COMPUTER APPLICATIONS AND PROGRAMMING

(Foundation in Engineering)

03 OCTOBER 2023
9:00 AM – 11:00 AM
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 4 pages excluding the cover page with **FIVE** questions only.

2. Attempt **ALL** questions. Distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Question 1: [20 marks]

a) Computer offer us many advantages in today's hectic world, a responsible computer user should also be aware of both the advantages and the disadvantage of computer use. Identify FOUR advantages and FOUR disadvantages of computer use.

[8 marks]

b) Computers process and store a large amount of data used by individuals. List down any FOUR types of computers used by individuals that are normally categorized as microcomputers.

[4 marks]

c) Compression is used to store data by making the file size much smaller to save space on storage devices. Name two types of image compression techniques and briefly explain how they work. Give an example of a graphic format that uses each of these compression techniques.

[8 marks]

Question 2: [20 marks]

a) The microprocessor in a computer contains two main components that work together to perform processing operations. Name the TWO main components and describe their main tasks.

[6 marks]

b) Cathode ray tube (CRT) monitors are being replaced with flat screen monitors. List down FIVE advantages of using flat screen monitors over CRT monitors.

[5 marks]

c) What is system software? Name and define briefly two types of system software.

[6 marks]

d) What is the purpose of the following utility software:
   i. Disc burning software
   ii. Disk defragmenter

[3 marks]

Continued...

Question 3: [20 marks]

a) Draw the flow chart for an algorithm that prompts the user for a positive integer ***n***, and determine if ***n*** is an even or odd integer number.

[4 marks]

b) Write a complete C program based on the following algorithm (pseudocode).

[6 marks]

```
if grade is 'A'.
print Excellent result.
if grade is 'B'.
print Good result.
otherwise
print Poor result.
```

c) Write a C program to display all odd numbers between 0 and 100 (not inclusive of 0 and 100) using ***for*** loop.

[6 marks]

d) Assuming the following C codes are written for a program to calculate the sum of 1 to 100. Using TWO different types of loops in C, write your code to replace the missing part of the codes."

[2+2 marks]

```
#include <stdio.h>

int main() {

    int counter, sum=0;

    <insert your code here>

    printf("Sum of 1 to 100 is %d.\n", sum);

    return 0;
}
```

Continued...

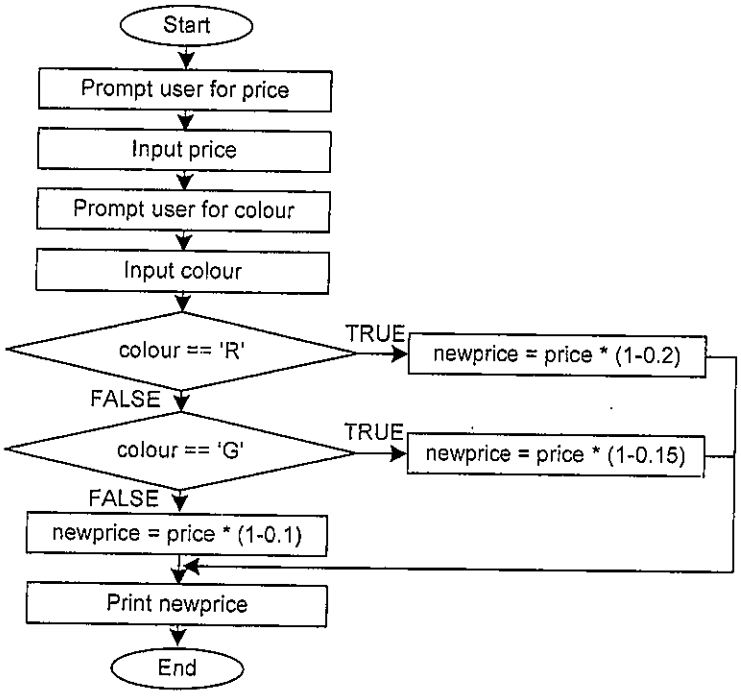
Question 4: [20 marks]

(a) During a store-wide sale, discount is given based on the colour of the discount sticker, as shown in Table 1 below.

Table 1

Colour	Discount rate
Red	20%
Green	15%
Blue	10%

The flow chart below shows the calculation of the new price of an item. Convert the flow chart to a complete C program.



[10 marks]

(b) Design a program that inputs an integer number from user, and determines if the integer is a multiple of 5.

a) Write an algorithm using pseudocode.
b) Write a complete C program using **if-else** statement.
c) Replace the **if-else** statement in part (b) with a **switch** statement.

[4+4+2 marks]

Continued...

Question 5: [20 marks]

a) Explain the difference between a LAN (Local Area Network) and a WAN (Wide Area Network). Provide examples of scenarios where each type of network would be most suitable.

[5 marks]

b) Explain the difference between a wired communication channel and a wireless communication channel. Provide TWO advantages and TWO disadvantages of each?

[2+8 marks]

c) Explain the concept of a client-server computing model. Provide TWO examples of applications that use this model.

[5 marks]

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